



Relativistic electron accelerations associated with the interplanetary pressure pulse

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The radiation belt electron fluxes are highly variable, and various time scales for the flux enhancements are observed. The rapid flux enhancements of the outer belt electrons have been observed associated with the solar wind pressure pulse. In order to investigate such rapid flux enhancements, we conduct the code-coupling simulations of GEMSIS-RB test particle simulation [Saito et al., 2010] and GEMSIS-GM global MHD simulation [Matsumoto et al., 2010]. The GEMSIS-RB simulation calculates the 3-dimensional guiding-center motion of a number of test particles in the electric/magnetic fields provided from the GEMSIS-GM. After the arrival of the pressure pulse, the outer belt electrons in the dayside moves inward due to the drift resonance with inductive electric fields of the fast mode waves. Some of electrons are strongly accelerated within a few ten minutes and spiral patterns of drifted electrons can be observed. We may discuss the possibility to identify such selected acceleration of relativistic electrons by Van Allen Probes and upcoming ERG satellite.